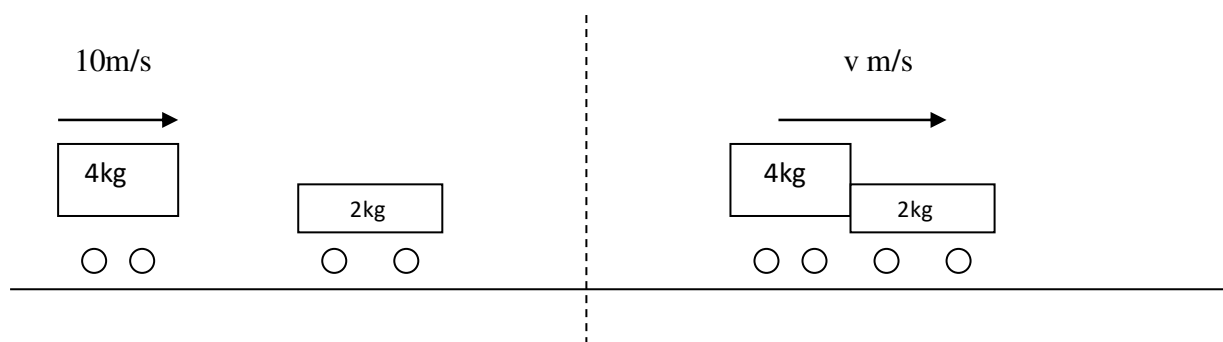


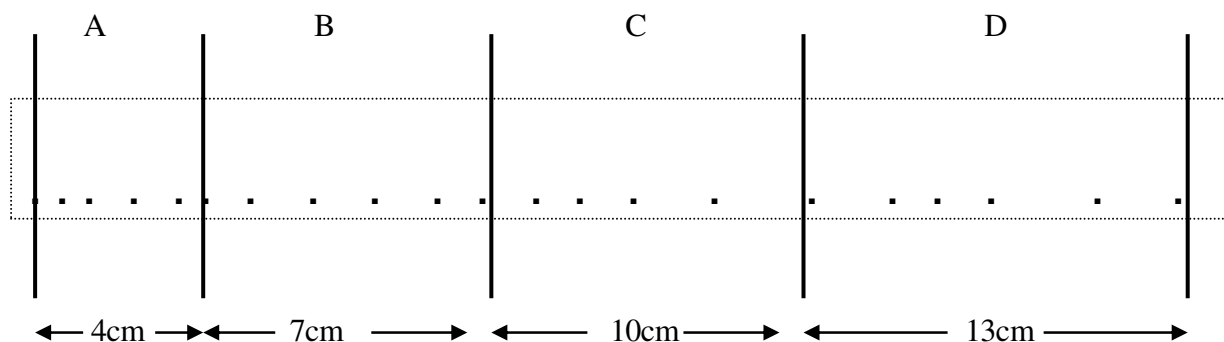
**BA SANGAM COLLEGE**  
**YEAR 12**  
**PHYSICS**  
**WORKSHEETS 3**

1.

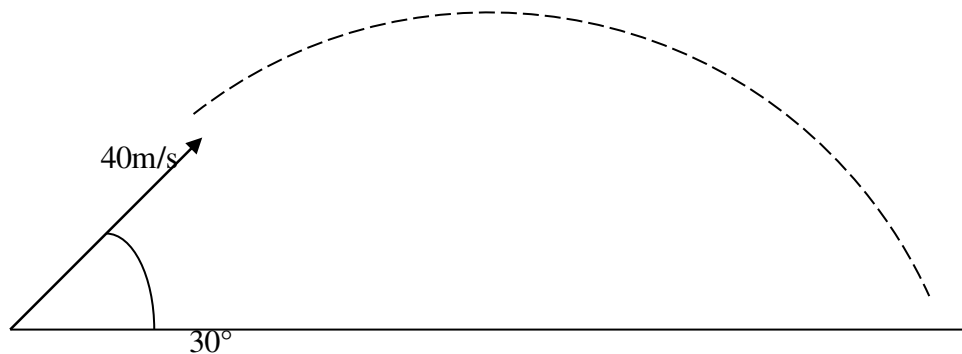
- a) A ball is thrown vertically upwards at  $20\text{m/s}$  by Salome. Ignoring air resistance and using  $g = 10\text{m/s}^2$ , calculate:
- The maximum height that the ball reaches.
  - The time of flight.
- b) The figure given below shows Sereana's toy car of mass  $4\text{kg}$  moving at  $10\text{m/s}$  along a horizontal about to collide with a stationary toy car of mass  $2\text{kg}$ . After the collision, the two bodies lock together and move off with same velocity.



- Calculate the velocity with which both masses move off after collision?
  - State whether it is elastic/ inelastic collision? Show working.
  - State the law of conservation of momentum
- c) Refer to the ticker-timer tape shown below of a ticker- timer of frequency  $50\text{ Hz}$ .



- i) Calculate the speed in Section D
  - ii) What is the acceleration between Section A and Section B?
- b) Tom whirls a bung of mass 1kg at a constant speed of 8m/s in a horizontal circle of radius 3.0m. Calculate the time in seconds for one revolution.
- 2 A golf ball is struck with a velocity of 40m/s at an angle of  $30^\circ$  on a level fairway. Neglect air resistance and use  $g = 10\text{m/s}^2$ . The mass of the golf ball is 100g.



- i) What are its initial vertical and horizontal components of the balls velocity?
- ii) What is the maximum height reached?
- iii) What is the time of the flight?
- iv) Find the range of the projectile?
- v) What is the total energy of the ball at maximum height?
- vi) Which velocity remains constant throughout and why?